

*The Structure of the Sidereal Universe.* By T. W. Backhouse.

(Abstract.)

Curves of stars have often been noted in the heavens, but less attention has been paid to what the writer has found to be a far more striking and prevalent feature, of which this paper more especially treats—*straight* lines and *parallel* arrangements of pairs, lines, and bands of stars, and also of irresolvable wisps.

A special small area of the sky, viz. that portion of the Milky Way included between 15, 13, 8 *Monocerotis*, a *Orionis*,  $\zeta$  *Tauri*, and 5,  $\mu$ ,  $\xi$  *Geminorum*, has been selected for detailed scrutiny; and the descriptions refer chiefly to the configurations in this area. The observations have been made by the author during the last eight years, and nearly all of them at Sunderland; some are features noted by unaided vision, but most of them were gleaned by the use of a binocular field-glass of 2.05 inches aperture; a refracting telescope of  $4\frac{1}{4}$  inches aperture being occasionally used.

The details are exhibited in tabular form in the original paper, and include features noticed in Argelander's *Atlas des nördlichen gestirnten Himmels*. Though the field-glass shows nearly as many stars as the maps, the same features are not always found, two suggested reasons for this being that stars separately too faint to be inserted in the maps may be impressed upon the eye by their united light; and, on the other hand, the appearance of a line may be destroyed by surrounding stars. Proctor's chart of the whole of Argelander's stars was also examined for comparison, and for the great cluster in *Gemini* the MM. Henry's photograph of that object.

The paper contains the following sections:—

Part I.—Lines and parallel arrangements of stars.

Part Ia.—Lines and parallel arrangements in clusters.

Part II.—Nebulous wisps.

Part IIa.—Nebulæ.

In these are given the detailed structure in different parts of the area, showing the various systems of parallel lines and wisps, together with their position-angles referred to that portion of Gould's Galactic Equator (vide *Uranometria Argentina*, p. 371), which runs through the middle of the area in question. For comparison are also given the position-angles, referred as above, of several well-recognised circles in the heavens as

Part III.—Miscellaneous lines.

Many of the details described are obvious on the most casual glance, and nearly all are conspicuous on careful scrutiny.

There is, besides the parallelisms, a most wonderful case of

radiation of stars and wisps in a fan-shaped group, 68 *Orionis* being approximately the centre. The only counterpart to this which the author has seen is one on a far larger scale, visible to the naked eye, but much less striking; viz. a radiation from near the Pole star to the Milky Way in the semicircle from  $\epsilon$  *Ursæ Minoris* to  $\beta$  *Camelopardi*.

Two maps and five figures accompany the paper; the latter exhibit the groupings of the various position-angles, showing a preponderance at an average deviation of  $15^\circ$  from the direction of Gould's Galactic Equator, viz. at a position-angle of  $345^\circ$  with that great circle, and more nearly parallel with a Galactic Equator derived from Proctor's chart of the *Durchmusterung* stars. There is a marked deficiency of position-angles at right angles to the Galactic Equator of those in the great cluster 35 *Messier*, as well as of the wisps.

The terms "nebulous wisps" and "nebulosity" have been given to that faint and diffused luminosity, usually in long and narrow bands, which when viewed with higher powers is sometimes resolved into stars, sometimes remains partially or wholly unresolved, and sometimes disappears altogether. When resolved, it in some cases shows very small and densely packed stars, in others widely scattered stars not much too faint to be individually visible with the lower power.

One conclusion derived from the investigation is that the stars and wisps in parallel lines are probably in the same region of space; and therefore that the majority of the stars—at least of those down to the 9th or 10th magnitude—in extensive tracts of the area examined are really near one another.

The paper is offered as a contribution to a subject till lately much neglected, in the hope that the observations will be supplemented by those of others, whether in confirmation or otherwise.

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*Discovery of Comet Brooks 1890.* By William R. Brooks.

I have the honour to announce to the Society my discovery, on March 19, 16 hours (standard, 75th meridian time), of a new comet in approximate R.A.  $21^h 9^m$ , Dec.  $+5^\circ 35'$ . I at once felt confident that the object was a comet, for the region has been thoroughly searched many times, and I had no record of a nebula in that place. On turning to Dr. Dreyer's "New General Catalogue of Nebulæ," published in the *Memoirs* of the Royal Astronomical Society, it was found that the nearest nebula recorded there was No. 7045 = J.H. 2108, which was  $2^\circ$  away, and marked  $\epsilon$  F, while my object was quite bright. The morning dawn advanced rapidly, however, and obliterated the object before I was positive of motion, but suspected a slight motion northward. The Harvard, Lick, and Warner Observatories